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Attorney Docket No. 11520US03

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the

application:

LISTING OF CLAIMS

Claims 1-30 (Canceled)

31.   (Currently Amended) In a communication system, a method of generating

a digital output data stream for subsequent digital-to-analog conversion to carrier signals

having a plurality of frequency bins, the method comprising:

receiving the digital input data stream;

generating digital subsymbols in response to the data stream;

generating digital data points representing the subsymbols without entering the

time domain in response to the subsymbols; and

accumulating the digital data points associated with one or more of the frequency

bins.

A method as claimed in claim 30 wherein the carrier signals comprise at least a

first carrier signal having a first frequency and carrying a first subsymbol and a second

carrier signal having a second frequency and carrying a second subsymbol,

wherein the input data stream comprises input digital first data and input digital

second data, and

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wherein the generating digital subsymbols comprises generating a digital form of

the first carrier signal carrying the first subsymbol in response to the first data and

generating a digital form of the second carrier signal carrying the second subsymbol in

response to the second data.

32.   (Previously Presented) A method as claimed in claim 31 wherein the

generating digital data points comprises:

storing one or more addressable tables of stored values;

addressing one or more of the tables;

reading a plurality of the stored values from the one or more tables; and

generating sets of signals to correspond to characteristics of the first and second

carrier signals based at least in part on the stored values read from the one or more

addressed tables.

33.   (Previously Presented) A method as claimed in claim 32 wherein the

characteristics comprise frequency and phase.

34.   (Previously Presented) A method as claimed in claim 33 wherein the

characteristics further comprise amplitude.

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35.   (Previously Presented) A method as claimed in claim 31 wherein the

receiving comprises one or more steps selected from the group consisting of:

       generating the input digital first and second data from an analog input

signal;

       generating the input digital first and second data from a digital data input

signal; and

       generating the input digital first and second data from an analog input

signal and a digital data input signal.

36.   (Previously Presented) A method as claimed in claim 31 wherein the

generating digital data points comprises:

       storing a table of values corresponding to at least a portion of a periodic

wave;

       addressing the table;

       reading a plurality of the stored values from the table so that the read

values represent the frequency and phase of the first and second carrier signals;

       calculating digital values corresponding to the amplitude of the first and

second carrier signals based at least in part on the stored values read from the

table; and

       accumulating the calculated digital values.

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37.   (Previously Presented) A method as claimed in claim 36 wherein the periodic wave comprises a sine wave.

38.   (Previously Presented) A method as claimed in claim 36 wherein the system comprises a primary site including a receiver;

wherein the stored values read from the table correspond to waves having frequency and phase characteristics corresponding to the frequency and phase characteristics of the first and second carrier signals to be transmitted to the receiver of the primary site;

wherein the calculating comprises multiplying stored values read from the table by an amplitude factor to generate the calculated digital values, the amplitude factor being dependent on the input digital first and second data; and

wherein the accumulating the calculated digital values comprises summing the calculated digital values.

39.   (Previously Presented) A method as claimed in claim 38 wherein the addressing the table comprises:

controlling the step sizes of the sequence of addresses that are to be used to address the table, including a first step size corresponding to the first carrier signal and a second step size corresponding to the second carrier signal; and

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         setting the start location at which the table is first addressed for each of the

first and second step sizes in response to the digital input data.

    40.   (Previously Presented) A method as claimed in claim 39 wherein the

controlling comprises generating a plurality of step sizes which correspond to a number

of carrier signals less than the number of carrier signals received by the receiver of the

primary site.

    41.   (Previously Presented) A method as claimed in claim 37 wherein the table

comprises digital data corresponding to a complete sine wave.

    42.   (Previously Presented) A method as claimed in claim 40 wherein the table

comprises digital data corresponding to a complete sine wave.

    43.   (Previously Presented) A method as claimed in claim 40 wherein the table

comprises digital data corresponding to a quarter sine wave.

    44.   (Previously Presented) A method as claimed in claim 43 and further

comprising the step of generating data representing a complete sine wave from the digital

data in the table.

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    45.   (Canceled)

    46.   (Canceled)

    47.   (Canceled)

    48.   (Canceled)

    49.   (Canceled)

    50.   (Currently Amended) <u>In a communication system, apparatus for generating a digital output data stream for subsequent digital-to-analog conversion to carrier signals having a plurality of frequency bins, the apparatus comprising:</u>

    <u>means for receiving the digital input data stream;</u>

    <u>means for generating digital subsymbols in response to the data stream;</u>

    <u>means for generating digital data points representing the subsymbols without entering the time domain in response to the subsymbols; and</u>

    <u>means for accumulating the digital data points associated with one or more of the frequency bins,</u>

~~Apparatus as claimed in claim 49~~ wherein the carrier signals comprise at least a first carrier signal having a first frequency and carrying a first subsymbol and a second carrier signal having a second frequency and carrying a second subsymbol,

    wherein the input data stream comprises input digital first data and input digital second data, and

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      wherein the means for generating digital subsymbols comprises means for

generating a digital form of the first carrier signal carrying the first subsymbol in

response to the first data and for generating a digital form of the second carrier signal

carrying the second subsymbol in response to the second data.

      51.   (Previously Presented) Apparatus, as claimed in claim 50, wherein the

means for generating digital data points comprises:

          means for storing one or more addressable tables of stored values;

          means for addressing one or more of the tables;

          means for reading a plurality of the stored values from the one or more

tables; and

          means for generating sets of signals to correspond to characteristics of the

first and second carrier signals based at least in part on the stored values read

from the one or more addressed tables.

      52.   (Previously Presented) Apparatus as claimed in claim 51 wherein the

characteristics comprise frequency and phase.

      53.   (Previously Presented) Apparatus as claimed in claim 52 wherein the

characteristics further comprise amplitude.

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54.   (Previously Presented) Apparatus as claimed in claim 50 wherein the

means for receiving comprises one or more means selected from the group consisting of:

means generating the input digital first and second data from an analog

input signal;

means for generating the input digital first and second data from a digital

data input signal; and

means generating the input digital first and second data from an analog

input signal and a digital data input signal.

55.   (Previously Presented) Apparatus as claimed in claim 50 wherein the

means for generating digital data points comprises:

means for storing a table of values corresponding to at least a portion of a

periodic wave;

means for addressing the table;

means for reading a plurality of the stored values from the table so that the

read values represent the frequency and phase of the first and second carrier

signals;

means for calculating digital values corresponding to the amplitude of the

first and second carrier signals based at least in part on the stored values read

from the table; and

means accumulating the calculated digital values.

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56.   (Previously Presented) Apparatus as claimed in claim 55 wherein the periodic wave comprises a sine wave.

57.   (Previously Presented) Apparatus as claimed in claim 55 wherein the system comprises a primary site including a receiver;

wherein the stored values read from the table correspond to waves having frequency and phase characteristics corresponding to the frequency and phase characteristics of the first and second carrier signals to be transmitted to the receiver of the primary site;

wherein the means for calculating comprises means for multiplying stored values read from the table by an amplitude factor to generate the calculated digital values, the amplitude factor being dependent on the input digital first and second data; and

wherein the means for accumulating the calculated digital values comprises means for summing the calculated digital values.

58.   (Previously Presented) Apparatus as claimed in claim 57 wherein the means for addressing the table comprises:

means for controlling the step sizes of the sequence of addresses that are to be used to address the table, including a first step size corresponding to the first

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carrier signal and a second step size corresponding to the second carrier signal; and

means for setting the start location at which the table is first addressed for each of the first and second step sizes in response to the digital input data.

59.   (Previously Presented) Apparatus as claimed in claim 58 wherein the means for controlling comprises means for generating a plurality of step sizes which correspond to a number of carrier signals less than the number of carrier signals received by the receiver of the primary site.

60.   (Previously Presented) Apparatus as claimed in claim 56 wherein the table comprises digital data corresponding to a complete sine wave.

61.   (Previously Presented) Apparatus as claimed in claim 59 wherein the table comprises digital data corresponding to a complete sine wave.

62.   (Previously Presented) Apparatus as claimed in claim 59 wherein the table comprises digital data corresponding to a quarter sine wave.

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63.   (Previously Presented) Apparatus as claimed in claim 62 and further

comprising means for generating data representing a complete sine wave from the digital

data in the table.

64.   (Canceled)

65.   (Canceled)

66.   (Canceled)

67.   (Canceled)

68.   (New) In a communication system, apparatus for generating a digital

output data stream for subsequent digital-to-analog conversion to carrier signals having a

plurality of frequency bins, the apparatus comprising:

        a receiving circuit for receiving the digital input data stream;

        a first generating circuit for generating digital subsymbols in response to

the data stream;

        a second generating circuit for generating digital data points representing

the subsymbols without entering the time domain in response to the subsymbols;

and

        an accumulating circuit for accumulating the digital data points associated

with one or more of the frequency bins,

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wherein the carrier signals comprise at least a first carrier signal having a first

frequency and carrying a first subsymbol and a second carrier signal having a second

frequency and carrying a second subsymbol,

wherein the input data stream comprises input digital first data and input digital

second data, and

wherein the first generating circuit comprises a circuit for generating a digital

form of the first carrier signal carrying the first subsymbol in response to the first data

and for generating a digital form of the second carrier signal carrying the second

subsymbol in response to the second data.

69. (New) Apparatus, as claimed in claim 68, wherein the second generating

circuit comprises:

a storing circuit for storing one or more addressable tables of stored

values;

an addressing circuit for addressing one or more of the tables;

a reading circuit for reading a plurality of the stored values from the one or

more tables; and

a generating circuit for generating sets of signals to correspond to

characteristics of the first and second carrier signals based at least in part on the

stored values read from the one or more addressed tables.

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70.   (New) Apparatus as claimed in claim 69 wherein the characteristics comprise frequency and phase.

71.   (New) Apparatus as claimed in claim 70 wherein the characteristics further comprise amplitude.

72.   (New) Apparatus as claimed in claim 68 wherein the receiving circuit comprises one or more circuits selected from the group consisting of:

a generating circuit for generating the input digital first and second data from an analog input signal;

a generating circuit for generating the input digital first and second data from a digital data input signal; and

a generating circuit for generating the input digital first and second data from an analog input signal and a digital data input signal.

73.   (New) Apparatus as claimed in claim 68 wherein the second generating circuit comprises:

a storing circuit for storing a table of values corresponding to at least a portion of a periodic wave;

an addressing circuit for addressing the table;

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a reading circuit for reading a plurality of the stored values from the table

so that the read values represent the frequency and phase of the first and second

carrier signals;

a calculating circuit for calculating digital values corresponding to the

amplitude of the first and second carrier signals based at least in part on the stored

values read from the table; and

an accumulating circuit for accumulating the calculated digital values.

74.   (New) Apparatus as claimed in claim 73 wherein the periodic wave

comprises a sine wave.

75.   (New) Apparatus as claimed in claim 73 wherein the apparatus comprises

a primary site including a receiver;

wherein the stored values read from the table correspond to waves having

frequency and phase characteristics corresponding to the frequency and phase

characteristics of the first and second carrier signals to be transmitted to the receiver of

the primary site;

wherein the calculating circuit comprises a multiplying circuit for

multiplying stored values read from the table by an amplitude factor to generate the

calculated digital values, the amplitude factor being dependent on the input digital first

and second data; and

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wherein the accumulating circuit comprises a summing circuit for summing the calculated digital values.

76.   (New) Apparatus as claimed in claim 75 wherein the addressing circuit comprises:

a controlling circuit for controlling the step sizes of the sequence of addresses that are to be used to address the table, including a first step size corresponding to the first carrier signal and a second step size corresponding to the second carrier signal; and

a start location circuit for setting the start location at which the table is first addressed for each of the first and second step sizes in response to the digital input data.

77.   (New) Apparatus as claimed in claim 76 wherein the controlling circuit comprises a generating circuit for generating a plurality of step sizes which correspond to a number of carrier signals less than the number of carrier signals received by the receiver of the primary site.

78.   (New) Apparatus as claimed in claim 74 wherein the table comprises digital data corresponding to a complete sine wave.

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79. (New) Apparatus as claimed in claim 77 wherein the table comprises

digital data corresponding to a complete sine wave.

80. (New) Apparatus as claimed in claim 77 wherein the table comprises

digital data corresponding to a quarter sine wave.

81. (New) Apparatus as claimed in claim 80 and further comprising a

generating circuit for generating data representing a complete sine wave from the digital

data in the table.